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EDELMAN, BRADLEY E	
ART UNIT	PAPER NUMBER
2153	9

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/766,649	Applicant(s) FERGUSON ET AL.
	Examiner Bradley Edelman	Art Unit 2153

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 January 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This is a first Office action on the merits of this application. Claims 1-22 are presented for examination.

Specification

1. The disclosure is objected to because of the following informalities: the status of related cases mentioned in the specification (see p. 11, line 10, for example) must be updated.

Claim Objections

2. Claims 1 and 11 are objected to because of the following informalities:

In claim 1, the phrase "roles to implemented" on line 6 contains a grammatical error. Perhaps it should read "roles to be implemented."

In claim 11, the phrase "a plurality of configuration entities further comprises," on line 2 of the claim is redundant, and should be deleted.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zager et al. (U.S. Patent No. 6,393,386, hereinafter "Zager"), in view of Bhaskaran (U.S. Patent No. 6,266,335).

In considering all of Applicant's claims, note that the claims are directed toward a network model for modeling a network. Note that the Zager reference teaches a network modeling system including various network elements, but not every known network element. Nonetheless, it would be obvious to a person having ordinary skill in the networking art to include any known network element in the network modeling system taught by Zager, so that the network model can be up to date by including the latest technologies, and can thus be as accurate as possible.

In considering claim 1, Zager discloses a configuration data model ("model") for relating configuration objects of a computer network to other configuration objects, and for expressing the configuration objects of a computer network in a form accessible by other network components (col. 5, lines 63-67; col. 6, lines 1-28), comprising:

Device role IP post entities that represent software roles to be implemented on specific network device IP hosts (col. 22, lines 50-61, wherein the "IP service consumer application" on a particular computer node is modeled);

IPs entities that represent IP addresses associated with devices on a network (col. 10, lines 23-50; col. 22, lines 50-61);

Status entities that represent the status of various software and hardware elements of a computer network (col. 6, lines 62-67, "change of state"; col. 7, lines 19-30, "events" and "alarms"); and

Device entities that represent specific devices on a network (col. 6, lines 15-18, 24-48, "hub, router, computer, ...").

Although Zager discloses numerous entities that can be part of the network model, including IPs entities as discussed above, Zager does not specifically disclose that the IPs entities are virtual IPs entities. Nonetheless, the use of virtual IPs entities in a computer network is well known, as evidenced by Bhaskaran. In a similar art, Bhaskaran discloses a network including hardware, software, IP entities, and devices, wherein the IP entities are virtual IP entities (Abstract, col. 1, lines 47-67, describing a "virtual IP" server system). Given the teaching of Bhaskaran, a person having ordinary skill in the art would have readily recognized the desirability and advantages of including virtual IPs entities in the network model taught by Zager, to allow for a more flexible and accurate model of the network system that can include all known network devices. Therefore, it would have been obvious to include virtual IPs entities taught by Bhaskaran as part of the model in the system taught by Zager.

In considering claim 2, Bhaskaran further discloses that the network may include encryption and other security measures (col. 2, lines 43-65). However, the system taught by Bhaskaran and Zager does not teach that a firewall conduit entity is necessarily included in the model system. Nonetheless, Examiner takes

official notice that the use of a firewall is a well known network practice used to increase security of network communications. Thus, given the knowledge that Bhaskaran includes security measures in its network system, and given the common knowledge of the use of firewalls in a network environment, a person having ordinary skill in the art would have readily recognized the desirability and advantages of including a conduit firewall entity in the model system of Zager and Bhaskaran to allow for a more flexible and accurate model of the network system that can include all known network devices. Therefore, it would have been obvious to additionally include the firewall conduit entities taught by Bhaskaran as part of the model in the system taught by Zager.

In considering claim 3, Zager further discloses device role configuration entities that specify the configuration of various software roles to be implemented on devices connected to a network (col. 6, lines 12-34; col. 12, lines 23-40, wherein configuration changes for system resources are implemented in the model).

In considering claim 4, Zager further discloses device role configuration values that define specific types of device role configurations that may be contained by the device role configuration entities (col. 19, lines 12-15, 51-54; col. 22, lines 62-67; col. 23, lines 1-6, describing configuration of various devices with different roles, wherein the configuration values are necessarily part of the configurations).

In considering claim 5, Zager further discloses role configurations entities that define the configuration associated with software roles of devices on a network (col. 6, lines 12-28; col. 19, lines 12-15, 51-54; col. 22, lines 62-67; col. 23, lines 1-6, describing configuration of various devices and software with different roles).

In considering claim 6, Zager discloses a configuration data model for relating information regarding the configuration of various software, network, and hardware entities on a computer network, comprising:

Role configurations entities, device role configuration entities, and device role IP host entities that define the configuration of various software roles of devices and applications used on a computer network (col. 22, lines 50-61, wherein the "IP service consumer application" on a particular computer node is modeled; col. 6, lines 15-18, 24-48, "hub, router, computer, ...");

Status entities for monitoring the status of various software and hardware elements of the computer network (col. 6, lines 62-67, "change of state"; col. 7, lines 19-30, "events" and "alarms"); and

IPs entities that relate to IP addresses to be used by devices connected to a network (col. 10, lines 23-50; col. 22, lines 50-61).

Although Zager discloses numerous entities that can be part of the network model, including IPs entities as discussed above, Zager does not specifically disclose that the IPs entities are virtual IPs entities. Nonetheless, the

use of virtual IPs entities in a computer network is well known, as evidenced by Bhaskaran. In a similar art, Bhaskaran discloses a network including hardware, software, IP entities, and devices, wherein the IP entities are virtual IP entities (Abstract, col. 1, lines 47-67, describing a "virtual IP" server system). Given the teaching of Bhaskaran, a person having ordinary skill in the art would have readily recognized the desirability and advantages of including virtual IPs entities in the network model taught by Zager, to allow for a more flexible and accurate model of the network system that can include all known network devices. Therefore, it would have been obvious to include virtual IPs entities taught by Bhaskaran as part of the model in the system taught by Zager.

In considering claim 7, the combined teaching of Zager and Bhaskaran further discloses that the virtual IPs entities relate to device entities representing specific devices connected to a network, and act as a buffer between the network and the devices represented by the device entities (Zager, col. 22, lines 50-61, describing the IP addresses assigned to certain network devices; Bhaskaran, col. 1, lines 47-67, describing that the virtual IP connections occur between the network and the destination servers, and therefore act as a buffer between the two systems).

In considering claim 8, Zager discloses a computer readable set of instructions residing on a computer-readable medium that produces a software data model comprising:

Device role IP host entities (col. 10, lines 23-42, ""IP network protocol MO on the database server's node offers networkAccess services");

Role configuration entities and device role configuration entities (col. 8, lines 22-41, wherein the devices have certain roles - i.e. computers, hubs, printers, and routers – and have different configurations); and

Status entities (col. 6, lines 62-67, "change of state"; col. 7, lines 19-30, "events" and "alarms");

Wherein device role IP host entities, role configuration entities, and device role configuration entities each relate to software roles that comprise multiple software packages to be installed on various devices connected to a network (col. 6, lines 12-28, describing the various software entities; col. 35, lines 32-50, wherein the manager selects a bundle to implement a service); and

Wherein said status entities monitor the status of hardware devices and software applications used on the network (col. 11, lines 17-45, "faults, states, events…").

However, Zager does not disclose virtual IPs entities wherein the virtual IPs entities relate to device entities representing specific devices and provide virtual IP addresses for the devices represented by the device entities to the various other devices using the computer network. Nonetheless, the use of virtual IPs entities in a computer network is well known, as evidenced by Bhaskaran. In a similar art, Bhaskaran discloses a network including hardware, software, IP entities, and devices, wherein the IP entities are virtual IP entities that represent specific devices (i.e. servers) to other devices on the network

(Abstract, col. 1, lines 47-67, describing a "virtual IP" server system). Given the teaching of Bhaskaran, a person having ordinary skill in the art would have readily recognized the desirability and advantages of including virtual IPs entities in the network model taught by Zager, to allow for a more flexible and accurate model of the network system that can include all known network devices. Therefore, it would have been obvious to include virtual IPs entities taught by Bhaskaran as part of the model in the system taught by Zager.

In considering claim 9, Zager discloses a configuration data model for characterizing the configuration of all software and hardware elements connected to a network (col. 3, lines 4-11, "model, not only the significant hardware and software resources of the system being administered, but also the service relationships connecting those resources"), comprising:

A plurality of device entities (col. 6, lines 15-17, "hardware" components);

A plurality of conduit entities (col. 6, lines 17-18, "hub, router,...");

A plurality of device role IP host entities (col. 10, lines 23-42, ""IP network protocol MO on the database server's node offers networkAccess services");

A plurality of interface IP type entities (wherein hubs and routers are interfaces to the network);

A plurality of services entities (col. 10, lines 23-42, "networkAccess services");

A plurality of role configurations entities and device role configurations entities (col. 8, lines 22-41, wherein the devices have certain roles - i.e. computers, hubs, printers, and routers – and have different configurations);

A plurality of status entities (col. 11, lines 17-45, "faults, states, events…");

A plurality of component type entities (col. 6, lines 15-17, "hardware and software components"); and

A plurality of device role configuration values entities (i.e. the configurations will necessarily be set to some value).

Although the system taught by Zager discloses all of these entities, including IP entities as discussed above, Zager does not specifically disclose that the IP entities are virtual IPs entities. Nonetheless, the use of virtual IPs entities in a computer network is well known, as evidenced by Bhaskaran. In a similar art, Bhaskaran discloses a network including hardware, software, IP entities, and devices, wherein the IP entities are virtual IP entities (Abstract, col. 1, lines 47-67, describing a "virtual IP" server system). Given the teaching of Bhaskaran, a person having ordinary skill in the art would have readily recognized the desirability and advantages of including virtual IPs entities in the network model taught by Zager, to allow for a more flexible and accurate model of the network system that can include all known network devices. Therefore, it would have been obvious to include virtual IPs entities taught by Bhaskaran as part of the model in the system taught by Zager.

In considering claim 10, although the system taught by Zager and Bhaskaran discloses substantial features of the claimed invention, it remains silent regarding the manufacturing model of the network entities. Nonetheless, any network will have devices of certain manufacturing models. Thus, it would have been obvious to a person having ordinary skill in the art to include these manufacturing models as part of the extensive network model taught by Zager, to better estimate the performance of the network, especially when it is a heterogeneous network like the Internet.

In considering claim 11, Zager further discloses that the plurality of configuration entities further comprises a plurality of component objects entities ("managed object," col. 8, lines 51-67).

In considering claim 12, Zager further discloses a plurality of device roles history entities ("interaction history," col. 15, lines 50-63).

In considering claim 13, Bhaskaran further discloses that the network may include encryption and other security measures (col. 2, lines 43-65). However, the system taught by Bhaskaran and Zager does not teach that a firewall conduit entity is necessarily included in the model system. Nonetheless, Examiner takes official notice that the use of a firewall having communications portholes is a well known network practice used to increase security of network communications. Thus, given the knowledge that Bhaskaran includes security measures in its

network system, and given the common knowledge of the use of firewalls in a network environment, a person having ordinary skill in the art would have readily recognized the desirability and advantages of including a conduit firewall entity in the model system of Zager and Bhaskaran to allow for a more flexible and accurate model of the network system that can include all known network devices. Therefore, it would have been obvious to additionally include the firewall conduit entities taught by Bhaskaran as part of the model in the system taught by Zager.

In further considering this claim, Zager further discloses that the model includes the entities' relationships to each other (col. 6, lines 25-27, "this model represents the various components, relevant subcomponents, and their service relationships to each other"), and further discloses that the entities may be related to each other according to one-to-many and many-to-one relationships (col. 29, lines 46-61, "relationship types have the following attributes… one-to-many… many-to-one"). Although the system taught by Zager does not explicitly describe the entity-by-entity relationships claimed, it nonetheless suggests, in cols. 6 and 29, that entities can have any type of relationship to other entities. Thus, it would have been obvious to a person having ordinary skill in the art to include the specific many-to-one relationship mentioned in the claim to the system taught by Zager, to allow for a more flexible and accurate model of the network system.

In considering claim 14, Zager further discloses that the device role IP host entities relates an IP host address to a device role (col. 10, lines 23-60, wherein the model includes the paths to specific IP hosts).

In further considering this claim, Zager further discloses that the model includes the entities' relationships to each other (col. 6, lines 25-27, "this model represents the various components, relevant subcomponents, and their service relationships to each other"), and further discloses that the entities may be related to each other according to one-to-many and many-to-one relationships (col. 29, lines 46-61, "relationship types have the following attributes... one-to-many... many-to-one"). Although the system taught by Zager does not explicitly describe the entity-by-entity relationships claimed, it nonetheless suggests, in cols. 6 and 29, that entities can have any type of relationship to other entities. Thus, it would have been obvious to a person having ordinary skill in the art to include the specific many-to-one relationships mentioned in the claim to the system taught by Zager, to allow for a more flexible and accurate model of the network system.

In considering claim 15, Zager further discloses that the interface IP type entities represent allowed types of IP addresses within the network (col. 27, lines 30-65, "domain name services").

In further considering this claim, Zager further discloses that the model includes the entities' relationships to each other (col. 6, lines 25-27, "this model represents the various components, relevant subcomponents, and their service

relationships to each other"), and further discloses that the entities may be related to each other according to one-to-many and many-to-one relationships (col. 29, lines 46-61, "relationship types have the following attributes... one-to-many... many-to-one"). Although the system taught by Zager does not explicitly describe the entity-by-entity relationships claimed, it nonetheless suggests, in cols. 6 and 29, that entities can have any type of relationship to other entities. Thus, it would have been obvious to a person having ordinary skill in the art to include the specific one-to-many relationship mentioned in the claim to the system taught by Zager, to allow for a more flexible and accurate model of the network system.

In considering claim 16, Bhaskaran further discloses that the virtual IPs entities represent virtual IP addresses that are used by a router to route traffic for a single IP address to multiple computers (col. 1, lines 52-67). Zager further discloses a plurality of monitoring entities (i.e. alarms, etc.) and network entities (i.e. routers, etc.).

In further considering this claim, Zager further discloses that the model includes the entities' relationships to each other (col. 6, lines 25-27, "this model represents the various components, relevant subcomponents, and their service relationships to each other"), and further discloses that the entities may be related to each other according to one-to-many and many-to-one relationships (col. 29, lines 46-61, "relationship types have the following attributes... one-to-many... many-to-one"). Although the system taught by Zager does not explicitly

describe the entity-by-entity relationships claimed, it nonetheless suggests, in cols. 6 and 29, that entities can have any type of relationship to other entities. Thus, it would have been obvious to a person having ordinary skill in the art to include the specific many-to-one and one-to-many relationships mentioned in the claim to the system taught by Zager, to allow for a more flexible and accurate model of the network system.

In considering claim 17, Zager further discloses that the services entities represent services to be performed by a series of applications accessible by a network server (col. 10, lines 50-60, describing two different client applications that access a service at a server).

In further considering this claim, Zager further discloses that the model includes the entities' relationships to each other (col. 6, lines 25-27, "this model represents the various components, relevant subcomponents, and their service relationships to each other"), and further discloses that the entities may be related to each other according to one-to-many and many-to-one relationships (col. 29, lines 46-61, "relationship types have the following attributes... one-to-many... many-to-one"). Although the system taught by Zager does not explicitly describe the entity-by-entity relationships claimed, it nonetheless suggests, in cols. 6 and 29, that entities can have any type of relationship to other entities. Thus, it would have been obvious to a person having ordinary skill in the art to include the specific one-to-many relationship mentioned in the claim to the

system taught by Zager, to allow for a more flexible and accurate model of the network system.

In considering claim 18, Zager further discloses that the role configurations entities represent configurations related to software roles (col. 6, lines 15-28, describing the software components of the models).

In further considering this claim, Zager further discloses that the model includes the entities' relationships to each other (col. 6, lines 25-27, "this model represents the various components, relevant subcomponents, and their service relationships to each other"), and further discloses that the entities may be related to each other according to one-to-many and many-to-one relationships (col. 29, lines 46-61, "relationship types have the following attributes... one-to-many... many-to-one"). Although the system taught by Zager does not explicitly describe the entity-by-entity relationships claimed, it nonetheless suggests, in cols. 6 and 29, that entities can have any type of relationship to other entities. Thus, it would have been obvious to a person having ordinary skill in the art to include the specific many-to-one relationships mentioned in the claim to the system taught by Zager, to allow for a more flexible and accurate model of the network system.

In considering claim 19, Zager further discloses that the device role configuration entities represent configurations of software roles for specific devices (col. 6, lines 15-28).

In further considering this claim, Zager further discloses that the model includes the entities' relationships to each other (col. 6, lines 25-27, "this model represents the various components, relevant subcomponents, and their service relationships to each other"), and further discloses that the entities may be related to each other according to one-to-many and many-to-one relationships (col. 29, lines 46-61, "relationship types have the following attributes... one-to-many... many-to-one"). Although the system taught by Zager does not explicitly describe the entity-by-entity relationships claimed, it nonetheless suggests, in cols. 6 and 29, that entities can have any type of relationship to other entities. Thus, it would have been obvious to a person having ordinary skill in the art to include the specific one-to-many and many-to-one relationships mentioned in the claim to the system taught by Zager, to allow for a more flexible and accurate model of the network system.

In considering claim 20, Zager further discloses that status entities represent status conditions of various hardware and software objects (i.e. alarms, events, etc.).

In further considering this claim, Zager further discloses that the model includes the entities' relationships to each other (col. 6, lines 25-27, "this model represents the various components, relevant subcomponents, and their service relationships to each other"), and further discloses that the entities may be related to each other according to one-to-many and many-to-one relationships (col. 29, lines 46-61, "relationship types have the following attributes... one-to-

many... many-to-one"). Although the system taught by Zager does not explicitly describe the entity-by-entity relationships claimed, it nonetheless suggests, in cols. 6 and 29, that entities can have any type of relationship to other entities. Thus, it would have been obvious to a person having ordinary skill in the art to include the specific one-to-many relationships mentioned in the claim to the system taught by Zager, to allow for a more flexible and accurate model of the network system.

In considering claim 21, Zager further discloses that the component type entities represent types of components used with said model (col. 6, lines 12-28).

In further considering this claim, Zager further discloses that the model includes the entities' relationships to each other (col. 6, lines 25-27, "this model represents the various components, relevant subcomponents, and their service relationships to each other"), and further discloses that the entities may be related to each other according to one-to-many and many-to-one relationships (col. 29, lines 46-61, "relationship types have the following attributes... one-to-many... many-to-one"). Although the system taught by Zager does not explicitly describe the entity-by-entity relationships claimed, it nonetheless suggests, in cols. 6 and 29, that entities can have any type of relationship to other entities. Thus, it would have been obvious to a person having ordinary skill in the art to include the specific one-to-many relationship mentioned in the claim to the system taught by Zager, to allow for a more flexible and accurate model of the network system.

In considering claim 22, Zager further discloses that the device role configuration values entities represent configuration values associated with software roles of a specific device (col. 6, lines 12-28, wherein a configuration necessarily is associated with some value).

In further considering this claim, Zager further discloses that the model includes the entities' relationships to each other (col. 6, lines 25-27, "this model represents the various components, relevant subcomponents, and their service relationships to each other"), and further discloses that the entities may be related to each other according to one-to-many and many-to-one relationships (col. 29, lines 46-61, "relationship types have the following attributes… one-to-many… many-to-one"). Although the system taught by Zager does not explicitly describe the entity-by-entity relationships claimed, it nonetheless suggests, in cols. 6 and 29, that entities can have any type of relationship to other entities. Thus, it would have been obvious to a person having ordinary skill in the art to include the specific many-to-one relationship mentioned in the claim to the system taught by Zager, to allow for a more flexible and accurate model of the network system.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley Edelman whose telephone number is 703-306-3041. The examiner can normally be reached from 9 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached on 703-305-4792. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bradley Edelman

BE
August 12, 2004